

DELTA PROTECTION COMMISSION

14215 RIVER ROAD

P.O. BOX 530

WALNUT GROVE, CA 95690

PHONE: (916) 776-2290

FAX: (916) 776-2293



AGENDA ITEM # 11

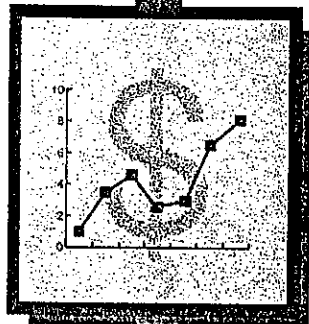
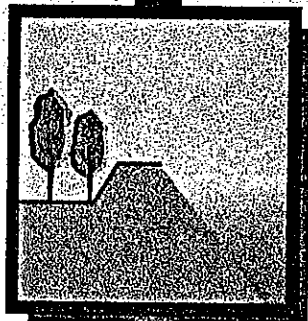
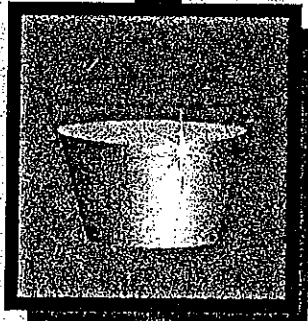
January 15, 1999

To: Delta Protection Commission

From: Margit Aramburu, Executive Director

Subject: Excerpts from CALFED's Revised Phase II Report

Attached are excerpts from the December 18, 1998 Revised Phase II Report. The excerpts describe the proposed actions for the next seven years. Additional reports on the several CALFED programs will be released later in January-February. To receive a full copy of the report contact CALFED at 1-800-700-5752.



CALFED
BAY-DELTA
PROGRAM

Revised Phase II Report

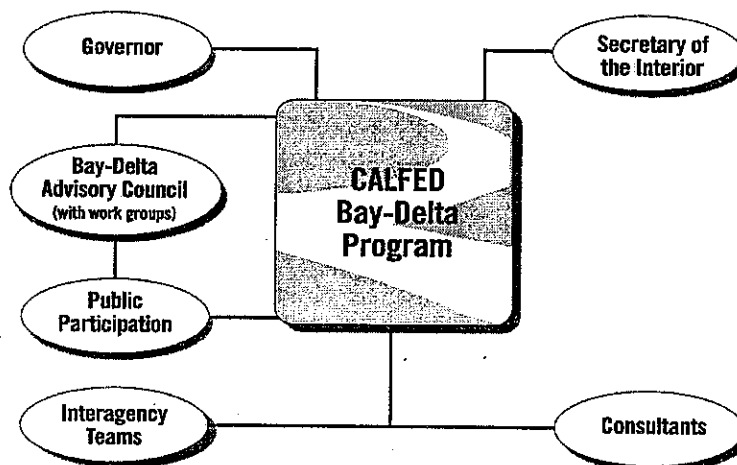
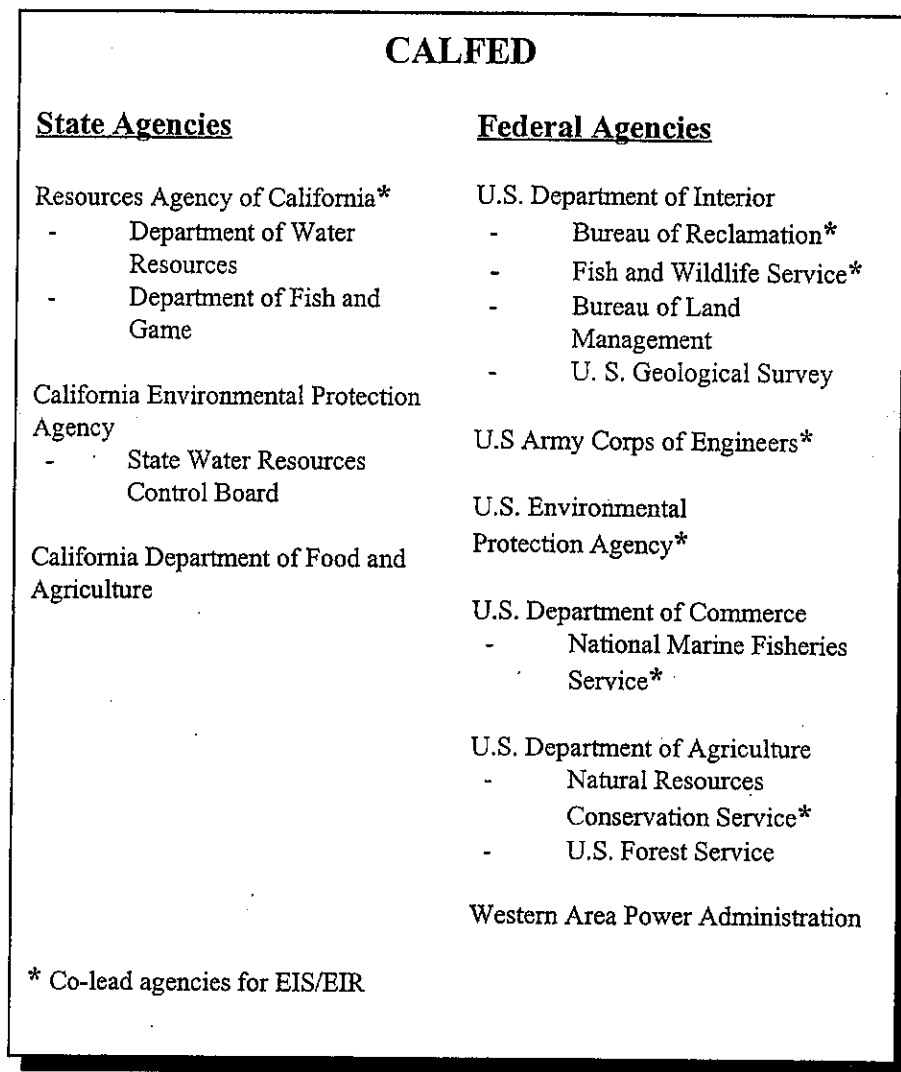
December 18, 1998

The Program

The CALFED Bay-Delta Program began in May of 1995 to address the tangle of complex issues that surrounds the Delta. The CALFED Program is a cooperative, interagency effort of 15 state and federal agencies with management or regulatory responsibilities for the Bay-Delta. In addition, other agencies, such as the California Department of Food & Agriculture, regularly participate in development of CALFED policies which affect their agencies.

The CALFED agencies appointed an executive director to oversee the process of developing a long-term comprehensive plan for the Bay-Delta. The Executive Director selected staff from the CALFED agencies to carry out the task. In addition, the CALFED agencies and stakeholders worked with the interagency CALFED Program team through multi-level technical and policy teams.

The CALFED Program is a collaborative effort including representatives of agricultural, urban, environmental, fishery, business, and rural counties who have contributed



to the process. The Bay-Delta Advisory Council (BDAC), a 34-member federally chartered citizens' advisory committee, provides formal comment and advice to the agencies during regularly scheduled public meetings. In addition, the CALFED process has included members of the public in development of every Program component from ecosystem restoration to financing.

CALFED BAY-DELTA PROGRAM MISSION STATEMENT, OBJECTIVES AND SOLUTION PRINCIPLES

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

CALFED developed the following objectives for a solution:

- Provide good water quality for all beneficial uses;
- Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species
- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system
- Reduce the risk to land use and associated economic activities, water supply, infrastructure and the ecosystem from catastrophic breaching of Delta levees.

In addition, any CALFED solution must satisfy the following **solution principles**:

- **Reduce Conflicts in the System** Solutions will reduce major conflicts among beneficial uses of water.
- **Be Equitable** Solutions will focus on solving problems in all problem areas. Improvements for some problems will not be made without corresponding improvements for other problems.
- **Be Affordable** Solutions will be implementable and maintainable within the foreseeable resources of the Program and stakeholders.
- **Be Durable** Solutions will have political and economic staying power and will sustain the resources they were designed to protect and enhance.
- **Be Implementable** Solutions will have broad public acceptance and legal feasibility, and will be timely and relatively simple to implement compared with other alternatives.
- **Have No Significant Redirected Impacts** Solutions will not solve problems in the Bay-Delta system by redirecting significant negative impacts, when viewed in their entirety, within the Bay-Delta or to other regions of California.

The Program was divided into three discrete phases.

Phase I

In Phase I, completed in September 1996, CALFED identified the problems confronting the Bay-Delta, developed a mission statement and guiding principles, and devised three preliminary categories of solutions for Delta water conveyance.

Following scoping, public comment, and agency review, CALFED concluded that each Program alternative would include a significant set of Program elements addressing problems for levee system integrity, water quality improvements, ecosystem restoration, and water use efficiency measures. Two additional elements (water transfers and watershed management) were added to each alternative because of their value in helping the Program meet its multiple objectives. These six program elements have generally been referred to as the *common programs*. In addition, CALFED identified three preliminary alternatives to be further analyzed in Phase II. The three preliminary alternatives represented three differing approaches to conveying water through the Delta. The first conveyance configuration relied primarily on the existing conveyance system, with some minor changes in the south Delta. The second configuration relied on enlarging channels within the Delta. The third configuration included in-Delta channel modifications and a conveyance channel that would move some water around the Delta. Each of these alternatives also included consideration of new ground and surface water storage options.

Phase II

CALFED is currently in Phase II, which will end in late 1999 at the time of the Final Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR). A programmatic EIS/EIR, also referred to as a first-tier document, is typically prepared for a series of actions that can be characterized as one large project and is required for actions proposed by or approved by state and federal agencies. In Phase II, CALFED is developing a preferred program alternative, is conducting comprehensive programmatic environmental review, and is developing the implementation plan focusing on the first seven years (Stage 1) following the Record of Decision (ROD) on the EIS/EIR.

This Revised Phase II Report primarily focuses on the draft preferred program alternative including background, description, and implementation plan. The full draft Programmatic EIS/EIR which will be released separately, other technical appendices, and supporting technical reports -- comprising thousands of pages -- will be available from CALFED and major libraries throughout the state.

Phase III

In Phase III, following completion of the Final Programmatic EIS/EIR, implementation will begin. This period will include site-specific environmental review and permitting, as necessary. Because of the size and complexity of any of the alternatives, implementation is likely to take place over a period of decades. Part of the challenge for Phase II is designing an implementation strategy that acknowledges this long implementation period and keeps all participants committed to the successful completion of all phases of implementation.

Public Involvement

During Phase I, which ended September 1996, CALFED held scoping meetings, technical workshops, public information meetings, and public BDAC workgroup meetings. The commitment to active public involvement has continued through Phase II with additional public meetings, presentations before focused groups, media outreach, special mailings of newsletters, regularly updated information on the Program's web site, and a toll-free public information telephone line.

In addition to the general public meetings and stakeholder workshops, 17 formal public hearings on the draft programmatic EIS/EIR were held around the state between April 21 and May 28, 1998.

The Program has worked to involve California's diverse multi-cultural communities by producing fact sheets in five languages (Spanish, Chinese, Japanese, Korean, and Vietnamese), meeting with multi-cultural business, media, social service and agricultural organizations, and placing media notices in ethnic media outlets. Increasing awareness and knowledge among the multi-cultural communities is a continued goal of CALFED's public outreach.

WHERE TO FIND PUBLIC OUTREACH INFORMATION

- Program's website (<http://calfed.ca.gov>)
- Toll-free public information telephone line (1-800-700-5752)
- *CALFED News, EcoUpdate* and Factsheets (available from CALFED Bay-Delta Program, 1416 Ninth Street, Suite 1155, Sacramento, CA 95814; phone 916-657-2666)
- BDAC and other public meetings

Next Steps in Phase II

Between the Revised Draft Programmatic EIS/EIR and the Final EIS/EIR in late 1999, work will continue on refining and evaluating the preferred program alternative. This will include additional technical evaluations. CALFED will work with elected officials, local agencies, interest groups, and the public over the coming months to finalize the preferred program alternative.

A new public comment period on the Revised Draft Programmatic EIS/EIR will begin in early 1999, including public hearings throughout the state. The Final Programmatic EIS/EIR is scheduled for late 1999.

Some Delta Statistics

Area of the Watershed: The system drains more than 61,000 square miles, or 37% of the state.

Area of the Delta: The legal Delta includes 738,000 acres.

Delta Inflow*: Historic inflow ranges from 6 to 69 million acre feet (MAF) per year; average is 24 MAF.

Diversions: Over 7,000 diverters draw water from the system, including 1,800 in the Delta itself.

Delta Exports*: The SWP and CVP draw an average of 5.9 MAF (approximately 3.6 MAF for agriculture and 2.3 MAF for urban uses) from the Delta each year.

In-Delta Water Use: Net in-Delta water use averages approximately 1 MAF annually.

Flora: Over 400 plant species can be found in the Delta, not including agricultural crops.

Fauna: The Delta harbors about 225 birds, 52 mammals, and 22 reptile and amphibian species.

Fish: There are 54 fish species in the Delta, and a total of 130 in the Delta and Bay.

Marshes: There are 8,000 acres of tidal marsh in the Delta.

Levees and Channels: Over 700 miles of waterways are protected by 1100 miles of levees.

Subsidence: Some Delta lands are more than 20 feet below sea level.

Delta Farmland: Over 520,000 acres are farmed in the Delta.

Principal Crops: The most commonly grown Delta crops are wheat, alfalfa, corn, and tomatoes.

Agricultural Value: Average annual gross value of Delta production is \$500 million.

Recreation: Recreational use of the Delta is about 12 million user days per year

* Simulated flow based on historical hydrology, but with existing storage and conveyance facilities in place and operating to meet 1995 levels of demand.

5. DRAFT IMPLEMENTATION PLAN

Phase II of the CALFED Bay-Delta Program will culminate with the federal Record of Decision and the State Certification of the Final Programmatic EIS/EIR (expected to be completed late 1999). At that time, Phase III of the CALFED Bay-Delta Program will begin implementation of the preferred program alternative. Phase III is expected to extend 30 years or more.

Program implementation during Phase III will be guided by the implementation plan. The plan focuses on the early years of implementation when needed actions are better known but also provides a long-term vision for continuing implementation over the next several decades.

The implementation plan cannot be completed until the final programmatic EIS/EIR is completed and the complete "decision" is defined. Therefore, this draft implementation plan, like other chapters of the *Revised Phase II Report*, is a work in progress. The draft implementation plan contains the following parts:

- **Stage 1 Actions** - A list of proposed actions for the first seven years of implementation following the Record of Decision and Certification of the EIS/EIR
- **Water Operations** - Draft water operations strategy for the first seven years of implementation
- **Assurances and Governance Plan** - Set of tools and mechanisms to assure that the Program will be implemented and operated as agreed
- **Financing Plan** - Plan for funding the implementation of the preferred alternative including financing principles, cost allocation and cost sharing considerations, and Program element cost estimates
- **Comprehensive Monitoring, Assessment and Research Program** - Plan for monitoring and research that provides the data and necessary information to evaluate the performance of completed actions for use in supporting the adaptive management of future actions
- **Adaptive Management** - Plan to constantly monitor the Bay-Delta system and adjust future implementation as we learn more about the system and how it responds to our efforts
- **Long-Term Implementation** - A general vision (subject to adaptive management and the conditional decisions) for the 30-year Program implementation
- **Draft Stage 1 Environmental Compliance Strategy** - Framework for efficient processing of information needed for conforming with the regulatory procedures of the different agencies and their protocols, guidelines and time lines

5.1 Stage 1 Actions

Stage 1 is defined as the seven year period commencing with the final decisions on the Programmatic EIS/EIR. Agreement on Stage 1 actions is only one part of the decision for a preferred program alternative but, it is important that these actions achieve balanced benefits and lay a solid foundation for successful implementation of the Program.

The following pages provide more detail on potential actions for Stage 1. To the extent that such actions require additional authorizing legislation, such authorization will be developed and pursued in cooperation with stakeholders.

Adaptive management is an essential part of the implementation strategy for every program element to allow necessary adjustments as conditions change in future stages of implementation and as more is learned about the system and how it responds to restoration efforts. Consistent with the concept of adaptive management, some actions may need to be refined within the time frame of Stage 1 to reflect changing conditions or new information.

The outcome of and certain sites for Stage 1 decisions will not be known until additional information, including need for mitigation, is available and until the options to carry out these Stage 1 proposals have undergone environmental review. Consequently, the outcome could be altered as a result of that second tier environmental review and mitigation measures imposed as a part of those actions. However, where the impacts from the actions in Stage 1 have been included in the Programmatic EIS/EIR, the subsequent environmental documents can tier off the Programmatic document for cumulative and long-range impacts of the Programmatic decision.

Each potential action in the following Stage 1 list includes an estimate (in parenthesis) of when the action may occur within Stage 1. For example, "(yr 1)" indicates the action is expected to occur in the first year following the final decisions on the Programmatic EIS/EIR.

CALFED will continue work between the Revised Draft EIS/EIR and the Final EIS/EIR on grouping the Stage 1 actions into a series of bundles (packages) which can provide additional assurances for balancing benefits. For example, a package of actions in the Delta could include levee work, habitat improvements, water quality work, and facilities and operations to improve water supply reliability. Packages for some actions may be geographical, based on timing, or other grouping. Linking the actions would help assure that they all move forward together. These may be linked within the same project EIS/EIRs, tied by contractual documents, dependent on the same funding, or other means.

Levees

The focus of the long-term levee protection element of the Program is to reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees. Levee protection is an ongoing effort which builds on the successes of ongoing programs and consists of:

- *Base-level funding to participating local agencies*
- *Funding of special improvement projects for habitat and levee stabilization to augment the base-level funding*
- *Implementation of subsidence control measures to improve levee integrity*
- *Implementation of an emergency management and response plan to more effectively plan for and deal with potential levee disasters*
- *A risk assessment and risk management strategy*

The first stage continues the decades-long process to improve reliability of Delta levees.

1. Initiate the Levee Implementation Group (LIG). Develop and implement an outreach, coordination, and partnering program with local landowners including individuals, cities, counties, reclamation districts, resource conservation districts, water authorities, irrigation districts, farm bureaus, other interest groups, and the general public to assure participation in planning design, implementation, and management of levee projects (yr 1).
2. Obtain short-term federal and state funding authority as a bridge between the existing Delta Flood Protection Authority (AB360) and long-term levee funding (yr 1-5).
3. Obtain long-term federal and state funding authority (yr 1-7); e.g., the Corps of Engineers' current Delta Special Study could develop into a long-term Delta levee reconstruction program and the state would be the local cost-sharing partner.
4. Conduct project level environmental documentation and obtain appropriate permits for each bundle (package) of Stage 1 actions (yr 1-7).
5. Implement demonstration projects for levee designs, construction techniques, sources of material, and maintenance techniques that maximize ecosystem benefits while still protecting lands behind levees. Give priority to those levee projects which include both short (i.e. construction) and long-term (i.e. maintenance and design) ecosystem benefits, and which will provide increased information (yr 1-7).
6. Adaptively coordinate Delta levee improvements with ecosystem improvements by incorporating successful techniques for restoring, enhancing or protecting ecosystem values developed by levee habitat demonstration projects or ecosystem restoration projects into levee projects. Continue to develop techniques as major levee projects are implemented (Years 1-7).

-
7. Fund levee improvements up to PL84-99 in first stage (yr 1-7); e.g., proportionally distribute available funds to entities making application for cost sharing of Delta levee improvements.
 8. Further improve levees which have significant statewide benefits in first stage (yr 1-7) ; e.g., statewide benefits to water quality, highways, etc.
 9. Coordinate Delta levee improvements with Stage 1 water conveyance, water quality improvements and with potential conveyance improvements in subsequent stages (yr 1-7).
 10. Enhance existing emergency response plans, approximately \$29 million in Stage 1 (yr 1-7); e.g., establish \$10 million revolving fund, refine command and control protocol, stockpile flood fighting supplies, establish standardized contracts for flood fighting and recovery operations, outline environmental considerations during emergencies.
 11. Implement current BMPs to correct subsidence effects on levees. Assist CMARP activities to quantify the effect and extent of inner-island subsidence and its linkages to all CALFED objectives (yr 1-7).
 12. Complete total risk assessment for Delta levees (yr 1-7) and develop and begin implementation of risk management options as appropriate to mitigate potential consequences. Available CALFED risk management options may include:
 - Improving emergency response capabilities
 - Developing storage south of the Delta
 - Reducing the fragility of the levees
 - Improving through-Delta conveyance
 - Releasing more water stored north of the Delta
 - Restoration of tidal wetlands
 - Controlling and reversing island subsidence
 - Curtailing Delta diversions
 - Continued monitoring and analysis of total risk
 - Constructing an isolated facility

Water Quality

The water quality program will consist of a wide variety of actions to provide good water quality for environmental, agricultural, drinking water, industrial, and recreational beneficial uses of water. The majority of current water quality actions rely on comprehensive monitoring, assessment, and research to improve understanding of effective water quality management and on the ultimate control of water quality problems at their sources. The Stage 1 water quality effort focuses on reducing constituents contributing toxicity to the ecosystem and affecting water users (including BOD) and on reducing total organic carbon loading, salinity, and pathogens that degrade drinking water quality. In addition, research and pilot studies are recommended to obtain information prior to implementation of some actions. CALFED is pursuing Stage 1

actions to continually improve public health through improvements in drinking water quality which include studies and investigations that will contribute to an assessment on the need for additional conveyance actions and/or other means of providing better quality source water.

1. Prepare project level environmental documentation and permitting as needed (yr 1-7).
2. Coordinate with other CALFED program elements to ensure that in-Delta modifications maximize potential for Delta water quality improvements (yr 1-7).
3. Continue to clarify use of and fine-tune water quality performance targets and goals (yr 1-7).
4. Conduct the following mercury evaluation and abatement work:
 - Cache Creek*
 - Risk appraisal and advisory for human health impacts of mercury (yr 1-5).
 - Support development and implementation of TMDL for mercury (yr 1-7).
 - Determine bioaccumulation effects in creek and delta (yr 1-4).
 - Source, transport, inventory, mapping and speciation of mercury (yr 1-7).
 - Information Management/Public Outreach (yr 5-7).
 - Participate in stage 1 remediation (drainage control) of mercury mines if federal Good Samaritan protection obtained (yr 3-5).
 - Investigate sources of high levels of bioavailable mercury (yr 4-7).
 - Sacramento River*
 - Investigate sources of high levels of bioavailable mercury, inventory, map, and refine other models (yr 3-7).
 - Participate in remedial activities (yr 7).
 - Delta*
 - Research methylation (part of bioaccumulation) process in Delta (yr 1-2).
 - Determine sediment mercury concentration in areas that would be dredged during levee maintenance or conveyance work (yr 3-7).
 - Determine potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms (yr 3-5).
5. Conduct the following pesticide work:
 - Develop diazinon and chlorpyrifos hazard assessment criteria with DFG and the Department of Pesticide Regulations (yr 1).
 - Support development and implementation of a TMDL for diazinon (yr 1-7).
 - Develop BMPs for dormant spray and household uses (yr 1-3).
 - Study the ecological significance of pesticide discharges (using \$1.5 million of ERP funds) (yr 1-3).
 - Support implementation of BMPs (yr 2-7).
 - Monitor to determine effectiveness (yr 4-7).
6. Conduct the following heavy metals work:

-
- Determine spatial and temporal extent of metal pollution (yr 3-7).
 - Determine ecological significance and extent of copper contamination (yr 1-3).
 - Review impacts of other metals such as cadmium, zinc, and chromium (yr 1).
 - Participate in Brake Pad consortium to reduce introduction of copper (yr 1-7).
 - Partner with municipalities on evaluation and implementation of stormwater control facilities (yr 2-5).
 - Participate in remediation of mine sites as part of local watershed restoration and delta restoration (yr 2-7).
7. Conduct the following salinity reduction work in coordination with the San Joaquin Valley Drainage Program:
- Develop and implement supply water quality management activities to improve supply quality (yr 1-7).
 - Develop and implement a management plan to reduce drainage and reduce total salt load to the San Joaquin valley (yr 1-7).
 - Encourage source reduction programs including tiered pricing, expansion of drainage recirculation systems, land management, and land retirement where other options are infeasible (yr 1-3).
 - Conduct pilot projects to evaluate the feasibility of water reuse, through agroforestry, of various concentrations of saline water (yr 4-6).
 - Study feasibility of desalination methods including reverse osmosis (yr 7).
 - Study cogeneration desalination (yr 7).
 - Implement real time management of salt discharges (yr 3-7).
8. Conduct the following selenium work:
- Conduct selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (yr 1-5).
 - Research interactions of mercury and selenium (yr 2-3).
 - Refine and implement real-time management of selenium discharges (yr 1-7).
 - Expand and implement source control and reuse programs (yr 1-7).
 - Coordinate with other programs (yr 1-7); e.g., recommendations of San Joaquin Valley Drainage Implementation Program, CVPIA) for retirement of lands with drainage problems that are not subject to correction in other ways. (CVPIA alone will retire approximately 70,000 acres of land with selenium-caused water quality problems during time period of Stage 1.)
9. Conduct the following sediment reduction work/organochlorine pesticides:
- Participate in implementation of USDA sediment reduction program (yr 1-7).
 - Promote sediment reduction in construction arenas and urban SW, and

-
- other specific sites (yr 1-7).
 - Implement stream restoration and revegetation work (yr 4-7).
 - Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions (yr 4-7).
 - Coordinate with ERP on sediment needs (yr 1-3).
10. Conduct the following nutrients work:
- Complete studies of causes for DO sag in San Joaquin River (yr 1-2).
 - Define and implement corrective measures for DO sag (yr 1-7).
 - Encourage regulatory activity to reduce nutrients discharged by unpermitted dischargers (yr 1-7).
 - Develop inter-substrate DO testing in conjunction with ERP (yr 2-4).
 - Study nutrient effects on beneficial uses (yr 4-7).
11. Conduct the following unknown toxicity work:
- Participate in identifying unknown toxicity and addressing as appropriate (yr 1-7).
12. Other actions specific to drinking water improvements:
- Control TOC contribution through control of algae, aquatic weeds, agricultural runoff, and watershed improvement (yr 1-7).
 - Study brominated and chlorinated disinfection byproduct operational controls at water treatment plants and implement incremental improvements as warranted (yr 1-7)
 - Control of pathogens through control of cattle, urban storm water, sewage, boat discharge, and possibly recreational swimming; includes various projects depending on area of impact (yr 3-7).
 - Study recreational swimming impacts, wild animal impacts (yr 4).
 - Relocate Barker slough intake (yr 7+).
 - MTBE reductions in various areas (yr 3-5).
 - Address water quality problems in terminal reservoirs (yr 3-5).
 - Perform public health effects studies, as needed, to more specifically identify the potential health effects of bromide related disinfection byproducts (yr 1-3).
 - Investigate alternative sources of and means of providing high quality water supply for urban users of Delta water (yr 1-7).
 - Investigate, as needed, advanced treatment technologies for the removal of salt, bromide, total organic carbon, and pathogens in urban water supplies (yr 1-7).
 - Investigate combinations of new supplies and technologies that can minimize salt content of urban water supplies and provide greater public health protection (yr 1-7).
 - Convene a Delta Drinking Water Council in a public forum to consider relevant technical data to inform the governing entity in its consideration of solutions to identified public health issues for urban users of Delta

-
- water (yr 1-7).
 - Develop a plan sufficient to meet forthcoming EPA and Department of Health Services standards for brominated disinfection byproducts (by yr 7).
13. Conduct the following turbidity and sediment work:
- Implement protection actions in the upper watershed to reduce sedimentation of fish spawning habitat (yr 1-7).
 - Implement erosion control BMPs in the upper watershed (yr 1-7).
 - Construct sedimentation basins in urban and suburban areas (yr 1-7).
 - Evaluate use of a head control structure on lower Dominici Creek (yr 2-4).
 - Perform quantitative analysis of river sediment loads, budgets, and sources (yr 1-7).

Ecosystem Restoration

The CALFED ecosystem restoration program (ERP) is designed to maintain, improve, and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species. A foundation of this program element is the restoration of ecological processes associated with streamflow, stream channels, watersheds, and floodplains. Implementation of the ERP over the 20 to 30 year implementation period will be guided through an ecosystem-based, adaptive management approach. ERP goals and objectives for ecosystem, habitat, and species rehabilitation are designed to produce measurable and progressive improvements to the Bay-Delta ecosystem that should result in a high level of ecosystem health and species recovery that exceeds existing regulatory requirements while improving water supply reliability and water quality of the Bay-Delta Ecosystem. The Stage 1 restoration efforts are structured to accomplish significant improvement in Bay-Delta ecological health through a large scale adaptive management approach in which the actions inform management decisions in later stages of implementation.

Success of ERP Stage 1 actions is also critically dependent on other program elements, including water quality improvement actions throughout the Bay-Delta watershed, levee system integrity actions, and integration with a watershed management strategy and a water transfers market. The general priorities for restoration activities will be first on existing public lands as appropriate, second to work with landowners in voluntary efforts to achieve habitat goals including the acquisition of easements, third a combination of fee and easement acquisition, and fourth on acquisition of fee title as necessary to achieve program objectives. Acquisition will be on a willing seller basis and with emphasis on local coordination and partnerships and include appropriate mitigation for agricultural resource impacts. The intent is to maximize habitat benefits while minimizing land use impacts.

1. Develop and implement an outreach, coordination, and partnering program with local landowners and individuals, cities, counties, reclamation districts, the Delta Protection Commission, resource conservation districts, water authorities, irrigation districts, farm bureaus, other interest groups, and the general public to assure participation in planning design, implementation, and management of ERP projects.
2. Conduct project level environmental documentation and permitting as needed for each bundle of Stage 1 actions (yr 1-7).
3. Full coordination with other ongoing activities which address ecosystem restoration in the Bay-Delta system (yr 1-7); e.g., CVPIA, Four Pumps Agreement, Non-native Invasive Species Task Force, etc.
4. Implement habitat restoration in the Delta, Suisun Bay and Marsh, and Yolo Bypass to improve ecological function, facilitate recovery of endangered species, and determine the feasibility and desirability of implementing larger scale habitat restoration in future stages (yr 1-7):
 - Restore major habitat corridors with a mosaic of habitat types along the Mokelumne and San Joaquin Rivers, within the Yolo Bypass, and along other major fish migration corridors as practicable (yr 1-7).
 - Implement tidal wetland restoration projects to test the effectiveness of larger scale restoration at various locations in the Delta.
 - Restore large expanses of shallow water habitat in open water areas of the Delta.
5. Implement large-scale, restoration projects on select rivers (possibly Clear Creek, Deer Creek, and the Tuolumne River) that would include implementation of all long-term restoration measures in coordination with the watershed management common program and monitoring of subsequent ecosystem responses to learn information necessary for making decisions about implementing similar restorations in Stage 2 (yr 1-7).
6. Develop an ecosystem water market (potentially \$20 million per year) and acquire at least 100,000 acre-feet of water for critical ecosystem and species recovery needs (yr 1-7).
7. Complete targeted research and scientific evaluations needed to resolve the high priority issues and uncertainties (e.g., instream flow, exotic organisms, and Bay-Delta food web dynamics) to provide direction for implementing the adaptive management process and information necessary for making critical decisions in Stage 2 (yr 1-7).
8. Establish partnerships with universities for focused research (yr 1-7).
9. Complete the remaining 60% of the easements and/or acquisition for the Sacramento River meander corridor identified under the SB 1086 Program. Provide assurances for and participation by Sacramento River users and landowners that provides indemnification of affected parties against flooding impacts on neighboring landowners and impacts on water diverters (yr 1-7).

-
10. Acquire flood plain easements, consistent with ecosystem and flood control needs along the San Joaquin River in coordination with the Corps of Engineers' Sacramento and San Joaquin River Basins Comprehensive Study (yr 4-7).
 11. Continue high priority actions that reduce stressors of direct mortality to fishes (yr 1-7):
 - Aggressively screen existing unscreened or poorly screened diversion on the Sacramento River, San Joaquin River, and tributary streams.
 - Remove select physical barriers to fish passage.
 12. Continue gravel management (yr 5-7); e.g., isolate gravel pits on San Joaquin River tributaries and relocate gravel operations on Sacramento River tributaries (most gravel work would be implemented in subsequent stages with designs and plans for ecosystem reclamation of gravel mining sites).
 13. Improve research, monitoring, detection, and control of exotic species (yr 1-7):
 - Implement invasive plant management program in Cache Creek.
 - Develop ballast water management program.
 - Develop early-response invasive organism control programs.
 - Evaluate CALFED implementation actions and how those actions may benefit non-native species to the detriment of native species or the Bay-Delta ecosystem.
 14. Explore ways to provide incremental improvements in ecosystem values throughout the Bay-Delta system in addition to habitat corridors described above (yr 1-7); e.g., pursue actions that are opportunity-based (willing sellers, funding, permitting, etc.), provide incremental improvements on private land through incentives, develop partnerships with farmers on "environmentally friendly" agricultural practices, etc.
 15. Incorporate ecosystem improvements with levee associated subsidence reversal plans (yr 1-7).
 16. Evaluate the feasibility of harvest management to protect weaker stocks (yr 1-7).
 17. Implement projects on selected streams to provide additional upstream fishery habitat by removing or modifying barriers (yr 1-7).

Water Use Efficiency

The CALFED water use efficiency element focuses on formulation of policies which support implementation of efficiency measures at the local and regional level. The CALFED Water Use Efficiency Program will: 1) establish measurable objectives; 2) offer support and incentives through expanded programs to provide planning, technical, and financial assistance; 3) monitor progress towards objectives; and, 4) if these objectives are not met, re-evaluate objectives and management options. CALFED agencies will also support institutional arrangements that give local water suppliers an opportunity to demonstrate that cost-effective efficiency measures are being implemented. The first stage implements the processes which will continue in subsequent

-
5. Finalize CALFED evaluation process and 404(b)(1) analysis to determine the appropriate mix of groundwater and surface water storage projects to meet the program goals and objectives (yr 1-5).
 6. Site selection (yr 4-5).
 7. Evaluate improvements to potential conveyance to storage (yr 1-5).
 8. Obtain permits, negotiate operating agreements, and seek site specific authorization and reimbursable state or federal funding for land acquisition, site preparation, and construction if conditions and linkages are satisfied (yr 5-7).
 9. Identify beneficiaries and negotiate cost sharing agreements (yr 5-7).
 10. Begin construction if conditions and linkages are satisfied (yr 6-7).

Conveyance

CALFED's basic strategy is to develop a through-Delta conveyance alternative based on existing Delta configuration with some modifications. Some construction of improvements in the south and north Delta should occur within the first stage to improve conditions for ecosystem and water management reliability. Part of the first stage consists of studies and evaluations of the major conveyance features. This will allow conveyance projects to be ready for permitting and construction in later stages should the projects be necessary to meet Program objectives.

South Delta Improvements - *South Delta improvements consist of methods to control flow, stage and circulation, improve fish passage, fish screen and salvage facilities, and provide SWP/CVP interties upstream and downstream of the export pumps. South Delta conveyance improvements included in Stage 1 would function with the basic conveyance strategy or potential modifications.*

1. Complete various environmental documentation and permitting (including 404(b)(1) analysis) requirements for the various actions included in items 4 -11, below (yr. 1-4).
2. Design various south Delta improvements described in items 4,5, 7- 10, below (yr. 1-5, depending upon improvements).
3. Construct a new screened intake at Clifton Court Forebay that allows diversion into the forebay throughout the tidal cycle sized to meet the full export capacity of 10,300 cfs with appropriately protective screening criteria (yr 4-6).
4. Construct either a new screened intake at the head of the channel leading to the CVP pumping plant at Tracy, or an expansion of the new diversion at Clifton Court Forebay with a new intertie to the Tracy Pumping Plant. This new (or expanded new) diversion would be sized to meet the full Tracy Pumping Plant export capacity of 4600 cfs with appropriately protective screening criteria and, if connected to CCFB, allow a variable rate of diversion throughout the tidal cycle (yr. 1-4).

-
5. Implement the Joint Point of Diversion for SWC and CVP, which, if permitted by the SWRCB, would allow the SWP to pump CVP export flows and vice versa within the permitted export constraints of each (yr. 1-7).
 6. If appropriate, construct an intertie with up to 400 cfs of pumping from the CVP Delta Mendota Canal to the SWP California Aqueduct to overcome conveyance impediments downstream (yr. 5-7).
 7. Evaluate, and if appropriate, construct an intertie connecting the Tracy Pumping Plant to Clifton Court Forebay. The forebay intertie would be considered even if a new screened intake is constructed for the intake to the Tracy Pumping Plant to provide additional operational flexibility for both facilities (yr 5-7+).
 8. Construct an operable barrier at the head of Old River (yr 2-4).
 9. Implement additional physical features and associated operational rules required to address problems related to SWP and CVP export operations including south Delta water levels, channel scour, fisheries, and water quality in the south Delta or some other method to address the concerns (yr 2-4).
 10. Evaluate benefits and impacts of recirculation of a portion of Delta Mendota Canal flows through the Newman Wasteway to the San Joaquin River for water quality and ecosystem enhancements (yr 1-4).

North Delta Improvements - *North Delta Improvements consist of methods to address flood control, water quality, fisheries, and water supply reliability concerns. Actions include modification of the Delta Cross Channel operational criteria and creation of additional floodplain, wildlife, and fisheries habitat. A screened diversion at Hood and channel dredging and setback levees in the Mokelumne River will be evaluated and may be implemented if necessary.*

1. Prepare project environmental documentation (yr 1-5).
2. Conduct feasibility studies for screened diversion and fish passage facilities, channel modifications, and habitat improvements (yr 1-5).
3. Conduct field studies (yr 1-5).
4. Prepare environmental documentation for land acquisition for various purposes including habitat and flood protection (yr 2-3).
5. Acquire land and convert land use for habitat and flood protection improvements (yr 4-6).
6. Obtain permits and operating agreements (yr 4-6).
7. Design selected improvements (yr 4-6).
8. Develop operational criteria for the Delta Cross Channel that balances flood control, water quality, water supply reliability, and fisheries concerns.
9. Evaluate whether a 2,000 cfs screened diversion from the Sacramento River at Hood to the Mokelumne River can be constructed to improve or maintain central Delta water quality, without compromising fish protection achieved by operation

-
- of the Delta Cross Channel or creating other adverse fishery impacts.
 10. Evaluate the implementation of setback levees and/or dredging along the Mokelumne River from Interstate 5 downstream to the San Joaquin River to improve conveyance and resolve flood concerns in this region. These actions would be carefully coordinated with ecosystem restoration actions to create additional tidal wetlands and riparian habitat to assure that a balanced solution to local and regional concerns would be achieved.
 11. Based on the above evaluations, take appropriate action to provide a balanced solution to water quality, flood control, water supply reliability, and fisheries concerns.
 12. Conduct pilot studies for dredged material reuse for Delta levee improvements and habitat creation (yr. 1-7).

Isolated Facility - *The isolated facility (a new canal or pipeline connecting the Sacramento River in the northern Delta to the SWP and CVP export facilities in the southern Delta) will only be built when it is determined that the through-Delta conveyance actions coupled with other CALFED actions cannot meet CALFED goals and objectives. The following Stage 1 actions provide progress on initial studies in case the isolated facility is found necessary to meet CALFED objectives. 'Stage 1 studies relating to continuously improving public health through improved drinking water quality (see **Water Quality** section and **CMARP** section in this chapter) will be considered in determining whether those goals and objectives have been achieved without an isolated facility and/or other means of providing better quality source water. Stage 1 studies relating to actual fishery recovery, the entrainment effects of the south Delta export facilities, and the benefits and negative impacts of relocating the diversion point will also be assessed.*

1. Model potential operation scenarios for an isolated facility tied to modeling of water quality and fisheries to help in overall assessment of the need for an isolated facility and/or other means of providing better quality source water (yr 1-7).
2. Conduct the following actions if there is a decision to proceed with an isolated facility:
 - Prepare project environmental documentation (yr 4-or after).
 - Conduct feasibility studies (yr 4-or after).
 - Conduct field studies (yr 4-or after).
 - Assess right-of-way issues that could impact CALFED's ability to maintain a viable option for a potential future habitat and facility corridor (yr 4-or after).

Assurances & Institutional Arrangements

An assurances package is a set of actions and mechanisms to assure that the Program will be implemented and operated as agreed. The assurances package will include items to be adopted immediately as well as a contingency process to address situations where apart of the plan cannot be implemented as agreed. While the principles for the assurances package will be substantially complete before beginning Stage 1, many details remain to be finalized early in Stage 1 after the federal ROD and the State Certification.

1. Finalize coordination among agencies or new entity (yr 1-3); e.g., provide for ecosystem restoration authority within the individual CALFED agencies or in a new organization with responsibility for ecosystem restoration.
2. Expand on the conservation strategy (yr 1-3); next steps will implement mechanisms that will provide regulatory certainty for specific projects or bundled projects whose actions were identified in the ROD for completion during Stage 1.
3. Recommend legislation, if necessary, to implement new institutional arrangements or facilitate program implementation (yr 2-3). Legislation could serve to create a new entity or modify water transfer law and statutes to facilitate an appropriately protective water transfer framework recognizing law that may exist at that time. For any legislation to implement new institutional arrangements that would facilitate increased water transfers out of the Delta, include reaffirmation and enhancement of existing laws such as the Delta Protection Act, the Feigenbaum Act, the Watershed Protection Act, and the Protected Areas Act (Water Code §§1215, 1222, 1216, and 1217 [a]).
4. Incorporate the final State Board's water rights decision for allocation of responsibility to meet flow requirements for Water Quality Control Plan 95-6 (May 1995) in water transfer and operational rules.
5. Implement a CALFED environmental documentation, mitigation, and permit coordination process (yr 1-7).
6. Implement and revise contingency response as needed (yr 1-7).
7. Develop guidelines and support legislation for federal Good Samaritan protections for mine remediation (yr 1-2).

Finance

The financial package will seek to finance the preferred program (total Program costs for improvements, mitigation, and ongoing annual operating and maintenance costs) through a combination of federal, state, and user funds. This financing will be needed over several decades as the various parts of the preferred program alternative are implemented, operated, and maintained. An agreement on the financial principles including the benefits-based